



Federal Renewable Goal

Federal Energy Management Program

FRAMEWORK FOR MEETING FEDERAL RENEWABLE GOAL

Progress and Opportunities

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Anne Sprunt Crawley

Federal Energy Management Program



Overview

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- Progress to date
- 3 approaches
- Estimate of how approaches will meet goal
- Next steps



Progress to Date

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- Goal – 1422 GWh
- equals about 500 MW of wind (at 31% CF)

June 2000 173 GWh

Current: 206 GWh

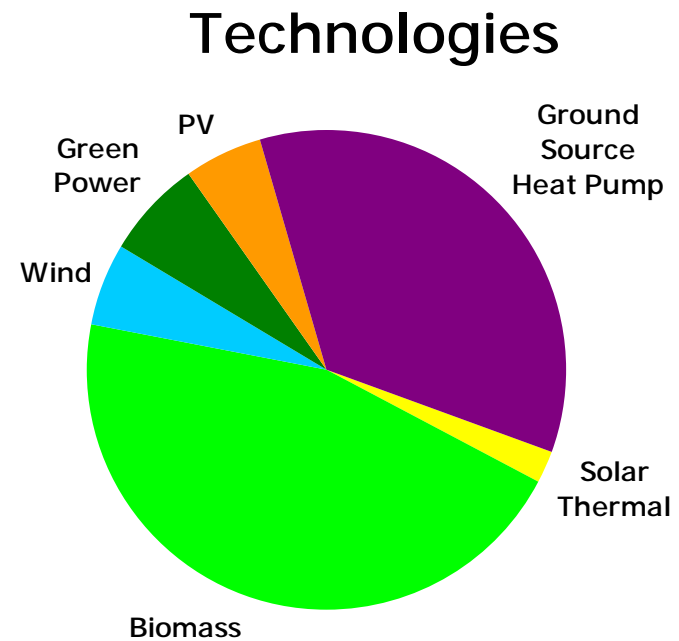
To Go: 1216 GWh



Technologies – 1990 – March 2002

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Solar Water Heat	4.7
Biomass	92.8
Wind	11.6
Green Power	13.5
Photovoltaics	11.1
Ground Source Heat Pump	71.9
Total	205.6





Three Approaches

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- Projects
- Renewable Energy Purchases
- Facilitated Projects



Project Approach

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- On site generation or low-energy design –
- Current – 191 GWh
- Goal – 213 GWh





Renewable Purchases Approach

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- Definition – Renewable energy purchases usually include purchases of renewable power or renewable energy credits (REC)
- Current – 13.5 GWh
- Goal – 213 GWh





Renewable Purchases Approach

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- REC (a financial transaction that supports investment in renewable energy projects without the complications involved in the physical delivery of power).
- Purchases can also include purchases of renewable fuels, biomass or other renewable energy



Facilitated Project Approach

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- Definition – Facilitated projects - where the agency's actions encourage or facilitate an increased use of renewable energy even though the agency may not use the renewable energy directly, or at all.
- Potential is high because these projects are not constrained by Federal demand, but can take advantage of prime resource locations. They are generally much larger in size than on-site projects supplying an individual facility.



Facilitated Project Approach

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- Current - 1 GWh
- Goal – 995 GWh
- Pending 740 GWh



Example Renewable Costs

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Technology	cents/kwh	\$/kW
Geothermal Heat Pump	35 - 62% cost savings	\$2,200 - \$3,000/ton
Biomass power	6-20	1,700
Solar-Photovoltaics		
2 kW system	18-36	6,500 – 13,000
20 kW system	15-21	5,300 – 7,500
Wind On-Site – 20kW	8 –12	1,500 – 2,500
Wind On-Site – 500kW	4 – 5	800 – 1,200
Wind Power Purchase	1.2-2.6 (premium)	NA
Solar – Hot water		(\$50-80/sf)



Next Steps

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- Discussion
- Finish Draft and Circulate Formally
- Collect information on progress
 - Integrated with Annual Report where possible
- Help make projects happen